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ABSTRACT

The instruction manual provides 12 step-by-step instructions for air traffic control supervisors in conducting over-the-shoulder training observations of enroute center controllers. Since the primary purpose of the review is to quickly identify training needs and requirements, the control responsibilities are approached from a deficiency viewpoint, and descriptions of functions and duties are written as performance deficiencies. The functions and duties covered are: separation, control judgment, traffic management, operating methods and procedures, coordination and communication, phraseology, and equipment. These are further subdivided into specific tasks. It is recommended that the controller's performance be observed for a minimum of four 10-minute periods. The Review Form for recording observations is included. (AG)

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AIR ROUTE TRAFFIC CONTROL CENTER

CONTROLLER OVER-THE-SHOULDER TRAINING REVIEW INSTRUCTION MANUAL

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SECTION 1

INTRODUCTION AND OVERVIEW

This document provides step-by-step instructions for air traffic control supervisors in conducting over-the-shoulder training observations of enroute center controllers. By following the procedures detailed in this document, performance areas in which the controller has deficiencies will be identified. Analysis of the observation results will help to determine the specific training required to improve individual controller performance.

The primary purpose of this over-the-shoulder training review is to quickly identify the training needs and requirements of controllers by observing any operating deficiencies firsthand during control performance. Therefore, the control responsibilities are approached from a deficiency viewpoint, and descriptions of functions and duties are written as performance deficiencies.

The responsibilities of the enroute center controller have been analyzed to arrive at a set of functions and duties directly related to technical performance in controlling aircraft. This set of technical functions has been categorized into seven proficiency or skill areas. Each proficiency or skill area contains a number of duties related to that control skill. This document contains descriptions of the functions and duties, and provides examples of the types of possible observed deficiencies. The descriptors are provided as typical indicators and are not to be construed as the only items for determining deficiencies.

This document also contains a detailed set of procedures for conducting the over-the-shoulder training review. In addition to observing controller performance, the reviewer is required to determine a complexity level for the conditions under which the control is performed. Also, the highest amount of simultaneous traffic handled during the training review must be determined.

Instructions for these and other routine procedures are explained in the instructions portion of this document.

The review form contains 27 control duties within the seven proficiency or skill areas. Dependent on the situation, some of these control duties can be considered more important or more significant than others and, therefore, more critical to the task of controller performance. The asterisks (*) on the review form identify these more significant duties wherein deficiencies indicate possible immediate training needs.

Knowledge of the descriptions of duties and the detailed step-by-step instructions for use are the only requirements for conducting an observation and completing the over-the-shoulder review form.

This over-the-shoulder training review is designed to allow team supervisors a rapid overall review of controller technical performance. As a training needs indicator, it is not designed to replace the semi-annual evaluation process. However, the results may be used to supplement the semi-annual evaluation process. As a supervisory aid, some of the resultant benefits from use are:

1. Quickly identifies controller control deficiencies.
2. Enables determination of training needs.
3. Can be conducted in short time period.
4. Can be used in making performance comparisons.
5. Can be used to determine training progress.
6. Reduction of time for identifying training needs allows more time for other supervisory duties.

Other long-range benefits include the use of the statistical data to project possible deficiency levels with changes in traffic load or complexity factors. With improved methods of application and subsequent use of the information, other benefits can be added to the list. This instrument will be as useful as the individual supervisor permits, based upon his desire for improvement in the areas of evaluation and training.

SECTION 2

TRAINING INDICATOR DESCRIPTIONS

FUNCTIONS AND DUTIES

The primary purpose of this over-the-shoulder training review method is to identify controller training requirements by observation of deficiencies during performance. To assist supervisors, the controller functions and duties have been described based on a deficiency definition. The following provides descriptions of the functions and duties to be observed during over-the-shoulder training reviews. As there is some overlap in the subjective definition of proficiency areas, detailed descriptors or typical examples of deficiencies are also provided for each of the duties to be reviewed.

The descriptions are not all encompassing nor are they meant to establish limits to the duties to be reviewed. Experienced supervisory reviewers may consider other factors and may note and mark these in descriptions or on the review form as part of the observed deficiencies.

The functions and duties contained in the following section are sequenced in the same order on the over-the-shoulder review form to assist in using the descriptions.

SEPARATION

1. Separation is not ensured: Does not provide control instructions or restrictions to ensure separation standards are maintained at all times.

   - Does not issue restrictions to prevent loss of separation.
   - Does not issue control instructions to prevent loss of separation.
   - Does not ensure separation standards are maintained under broadband, narrowband, or manual control.

CONTROL JUDGMENT

2. Awareness is not maintained: Continuous attention is not provided to all facets of the control environment to ensure that discrepancies do not exist; does not take action to resolve any discovered discrepancies; and does not ensure that other personnel/facilities affected by these discrepancies are notified. Fails to develop an accurate "picture in his mind" of the existing traffic, and does not display the ability to forecast future positions and relationships of aircraft.

   - Does not control in a manner to ensure future separation or flow problems will not exist; generally only reacts to situations that are eminent.
   - Fails to ensure flight strip information is in agreement with aircraft route/position.
   - Does not verify if a discrepancy exists anytime an unusual or non-standard situation occurs.
   - Is not aware of subsequent controller requirements.
   - Doesn't pay attention to what other controllers are doing.
   - Uses control procedures which result in unnecessary workloads and stress being placed on other controllers/facilities.

3. Poor control judgment is applied: Issues control instructions or restrictions that are not correct or reasonable. Does not use control procedures to allow for efficient flow of traffic. Fails to obtain all available facts about the control situation, does not fully and accurately determine aircraft requirements, and does not carefully plan procedures prior to issuing instructions.

- Fails to ensure awareness of all facts concerning the control situation.
- Doesn't determine the requirements of aircraft.
- Has to interrupt passing of clearances or instructions to obtain necessary information.
- Issues unnecessary restrictions.
- Accepts handoffs of aircraft that are in conflict or are about to lose separation.
- Utilizes incorrect vector procedures.
- Incorrectly evaluates the factors affecting safety of aircraft.
- Incorrectly evaluates the factors affecting traffic flow.
- Does not inform aircraft and appropriate personnel of existing significant situations.
- Controls in a manner which allows significant situations to develop resulting in system errors, lessening of safety, or unnecessary slowing of traffic.
- Allows unneeded separation.
- Allows unnecessary altitude, heading or speed changes.
- Has to issue additional instructions because previous actions or decisions were incorrect.

4. Control actions are incorrectly planned: Does not control traffic within area of responsibility in an orderly manner.

   - Control procedures are not orderly and tend to cause unnecessary complexity and confusion.
   - Applies flow control procedures earlier than required resulting in an unnecessary slowdown of traffic flow.

TRAFFIC MANAGEMENT

5. Positive control of situation is not provided: Controller does not take command of control situations; acts in a hesitant and unsure manner.

   - Acts unsure of himself.

6. Prompt action to correct errors is not taken: Fails to recognize when an error exists or has been made, and therefore does not take prompt action to correct the error.

   - Does not recognize when incorrect information has been passed to aircraft or other ATC personnel.
   - Does not act rapidly to correct the error.

7. Sector overload not prevented when possible: Fails to observe present and forecast traffic to predict if an overload may occur, and therefore does not take appropriate actions to prevent or lessen an overload situation.

   - Does not recognize potential overload situations.
   - Fails to initiate action to prevent or limit the overload.

8. Aircraft identity is not maintained: Fails to determine aircraft position through appropriate use of beacon, turn procedures or coordination with other sectors/facilities; does not maintain positive identification during the entire time the aircraft is within the sector area of responsibility.

   - Employs incorrect beacon or radar procedures.
   - Uses shrimp boats incorrectly.
   - Does not keep data blocks in association with correct targets.
   - Fails to reidentify aircraft when a doubt exists.

9. Board management is not maintained: Does not keep the flight strip bay properly organized. Does not adequately monitor flight data information and the position of aircraft on the display equipment.

   - Fails to closely monitor all air traffic data.
   - Unnecessarily moves to other positions.
   - Engages in conversations about miscellaneous matters when the control situation dictates concentration on the control situation.
   - Incorrectly sequences the flight strip.
   - Does not remove deadwood.

OPERATING METHODS AND PROCEDURES

10. Flight strip postings are incomplete or incorrect: Does not post all required information on flight strips.

    - Fails to post altitude changes, estimated times, radar contact, etc.
    - Posts data in incorrect area of strip.
    - Does not use required colors.
    - Postings are not legible.

10

11. Clearance delivery is incorrect/incomplete/untimely: Does not issue clearances in the correct format or order; is not specific and uses incorrect phraseology.

- Does not use specific terms to describe a fix.
- Uses inappropriate clearance fixes.
- Exceeds clearance authority.

12. Letters of Agreement/center directives not adhered to: Performance of control functions and duties are not in compliance with agreed upon facility procedures, handbook, or center directives.

13. Necessary traffic advisories are not provided: Does not follow the required format when passing traffic information, and does not pass traffic advisories when workload permits.

- Fails to provide traffic advisories to aircraft in PCA on workload permitting basis.
- Fails to provide advisory service to all radar identified aircraft.
- Does not issue complete traffic information in the required format.

14. Navigational assistance is not provided: Fails to issue appropriate control instructions to avoid significant situations, to obtain operational advantages to avoid congested areas, or to provide shorter routes.

- Does not provide navigational assistance when an operational advantage to the pilot or controller would be gained.

15. Handoff procedures are incorrectly performed: Does not verify aircraft position or coordinate any restrictions or special instructions; uses incorrect interphone procedures.

- Does not verify aircraft position.
- Does not satisfactorily coordinate special restrictions or instructions.
- Fails to correctly update flight strips.
- Does not perform handoff at appropriate time/position.

COORDINATION AND COMMUNICATION

16. Professional manner is not maintained: Does not demonstrate the ability to think clearly and act rapidly during stressful situations; and does not convey a positive and professional impression at all times.

- Fails to remain calm under stress.
- Does not continue to control in an effective manner when the control situation becomes stressful.
- Does not convey the impression of a skilled professional who can successfully handle the situation to other controllers, pilots, and related personnel.

17. Coordination is not thorough: Fails to coordinate all information that is pertinent to the situation. Fails to ensure that personnel receiving information have all of the contents, or does not acknowledge all information passed to him.

- Does not ensure that all required information has been passed.
- Does not verify or acknowledge all information exchanges.

18. Communication is unclear, not concise: Does not ensure that all data passed or received is understood; has to repeat information using different words to convey the intended meaning.

- Does not make intentions known.
- Does not ensure information is understood.
- Has to repeatedly explain intentions.

PHRASEOLOGY

19. Standard phraseology is not adhered to: Fails to use words and phrasings in accordance with the requirements of the duty being performed.

- Does not use approved procedural words, phrases and formats.
- Improvises when not necessary.

20. Uses poor voice quality: Quality of the controllers voice is such that it is hard to understand speech.

- Poor voice pitch or timbre.
- Voice is harsh, grating, or causes lack of understanding.

21. Speech rate is incorrect: Other personnel have difficulty understanding what has been said because controller speaks too rapidly or too slowly.

22. Makes unnecessary transmissions: Transmits information over radio or interphone that is not required; or transmits information as separate messages when it would be more efficient to combine information.

- Unnecessary use of radio or interphones.

EQUIPMENT

23. Equipment status information is not maintained: Does not maintain knowledge of sector equipment operating status or NAVAIDS used by aircraft flying through sector; and does not report malfunctioning equipment as required.

- Fails to determine status of equipment performance.
- Does not report malfunctions.

24. Computer entries are incorrect: Does not display knowledge of the entries required when interacting with the computer.

- Makes too many entry errors.
- Fails to make necessary computer entries which results in required control data not being displayed.
- Continually having to repeat computer switch actions.

25. Adjustment of control display is incorrect: Fails to adjust the radar presentation, whether narrowband or broadband, to present the best display possible, does not recognize when maintenance assistance is necessary; and does not ensure that radar control is provided when display has deteriorated beyond safe limits.

- Fails to enter all required data into computer for required sector display under RDP.
- Does not display entire sector.
- Adjusts gain so that targets are fuzzy and not sharp.

26. Equipment capabilities are not fully utilized/understood: Does not utilize available equipment to the fullest extent possible; does not display knowledge of capabilities and limitations of equipment and its associated backup.

- Uses other than best equipment available.
- Is not aware of built-in delay in radio equipment.
- Is unaware of secondary equipment when primary fails.

27. Radar changeover is incorrectly performed: Fails to follow orderly procedures to ensure a smooth transition from one radar processing system to another.

- Fails to take correct switch actions.
- Does not ensure radar displays are presented on appropriate scopes.
- Performance of changeover between sector personnel is neither orderly nor coordinated.

SECTION 3

TRAINING REVIEW INSTRUCTIONS

Following are the detailed procedures for conducting over-the-shoulder training reviews using the Center Controller Over-The-Shoulder Training Review Form. The controller's performance should be observed for a minimum of four 10-minute periods (40 minutes). The form has space for five review periods and additional forms may also be used if more than the minimum of four reviews is necessary.

Administrative information required on the form such as name, date, and facility, may be completed immediately prior to or subsequent to the reviews, but should not be entered during the conduct of a review period.

The supervisor/reviewer should review descriptions of possible deficiencies specified in Section 2, as well as the following training review instructions prior to the start of the review session. The sector to be used in conducting reviews should be determined by considering the types of traffic and complexity factors as well as the traffic load.

After plug-in at the appropriate monitor position, the review is conducted by using the following procedures.

1. Select a period of time during the watch when traffic will be adequate (preferably moderate or higher) to allow observation of most duties.
2. The review form allows for five review periods. Plan to take at least four reviews (40 minutes total) during the session, although more may be taken if desired; use additional forms, if necessary.

3. Each review consists of a 10-minute, closely monitored observation of duties. At the end of 10 minutes you may pause to catch your breath, reevaluate the situation, or whatever. Dependent on the traffic load, you may either delay the next review or begin a new review immediately. Continue taking observations until you have covered at least four review periods (40 minutes total).

4. When the observation starts, note the time in the left-hand portion of the space marked Time at the top of the review column.

5. During the review, keep track of the amount of traffic handled by the controller. The highest amount of simultaneous traffic (peak traffic) for the review should be noted in the Peak Traffic Count box at the top of the review column.

6. If the controller is observed incorrectly performing a duty, or is deficient in the performance of a duty, place a dot in the appropriate duty box to indicate each observed deficiency.

7. Each review should end after a 10-minute period. Note the end time in the right-hand portion of the space marked Time at the top of the review column.

8. Consider the nature of traffic complexity for the 10-minute review period and enter the designator in the appropriate box at the top of the review column. (The comment side of the review form contains a traffic complexity code for various levels of complexity.)

9. After completion of the review session, carefully count all the dot training indicators. Place the area totals in the space provided after each skill area. The overall dot training indicator total for the review is placed at the bottom of the column.

10. Duties 1 through 4 have been asterisked to indicate that deficiencies noted for these control duties are considered more significant than deficiencies for the other duties.

11. Technical performance on some duties may not be observed during the review and therefore, the duty box will be blank. For these, place an X (no action) in the duty box. This will serve to distinguish the no action items as opposed to acceptable performance items (remaining blank boxes).

12. Finalize the review by entering pertinent comments and other information on the comment side of the review form. All required information should be completed in the spaces provided.

The completed form provides a handy reference to the review period and furnishes details of deficiencies or weaknesses observed. It also serves as a supervisory aid in conducting the post review interview with the controller. As such, it helps to identify the training needs of the controller for discussion purposes.

CENTER CONTROLLER
OVER-THE-SHOULDER TRAINING REVIEW

CONTROLLER:	DATE:
REVIEWER:	POSITION REVIEWED:

FACILITY:	AREA:	SECTOR:

TRAFFIC COMPLEXITY

R – ROUTINE, NOT DIFFICULT
O – OCCASIONALLY DIFFICULT
M – MOSTLY DIFFICULT
V – VERY DIFFICULT

REVIEW NO.	1	2	3	4	5
DEFICIENCY COUNT					
PEAK TRAFFIC COMPLEXITY					

COMMENTS REGARDING THIS REVIEW SESSION

REVIEW 1: _____

REVIEW 2: _____

REVIEW 3: _____

REVIEW 4: _____

REVIEW 5: _____

DISCUSSION OF REVIEW RESULTS

CONTROLLER:	DATE:	REVIEWER:	DATE:

OVER-THE-SHOULDER REVIEW FORM

PEAK TRAFFIC COUNT

COMPLEXITY INDICATOR

TIME

SEPARATION

*1. Separation is not ensured.

Total deficiencies observed this area

CONTROL JUDGMENT

*2. Awareness is not maintained.

*3. Poor control judgment is applied.

*4. Control actions are incorrectly planned.

Total deficiencies observed this area

TRAFFIC MANAGEMENT

5. Positive control of situation is not provided.

6. Prompt action to correct errors is not taken.

7. Sector overload not prevented when possible.

8. Aircraft identity is not maintained.

9. Board management is not maintained.

Total deficiencies observed this area

OPERATING METHODS AND PROCEDURES

10. Flight strip postings are incomplete or incorrect.

11. Clearance delivery is incorrect/incomplete/untimely.

12. Letters of Agreement/center directives not adhered to.

13. Necessary traffic advisories are not provided.

14. Navigational assistance is not provided.

15. Handoff procedures are incorrectly performed.

Total deficiencies observed this area

COORDINATION AND COMMUNICATION

16. Professional manner is not maintained.

17. Coordination is not thorough.

18. Communication is unclear, not concise.

Total deficiencies observed this area

PHRASEOLOGY

19. Standard phraseology is not adhered to.

20. Uses poor voice quality.

21. Speech rate is incorrect.

22. Makes unnecessary transmissions.

Total deficiencies observed this area

EQUIPMENT

23. Equipment status information is not maintained.

24. Computer entries are incorrect.

25. Adjustment of control/display is incorrect.

26. Equipment capabilities not fully utilized/understood.

27. Radar changeover is incorrectly performed.

Total deficiencies observed this area

Total deficiencies observed this review

*Critical Training Indicator